

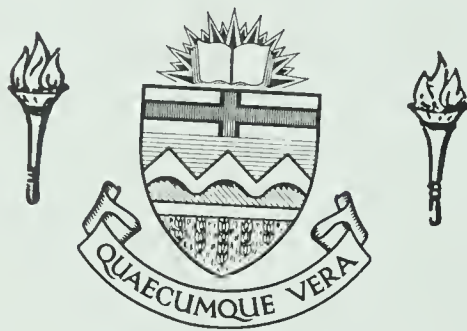
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THE DEVELOPMENT OF CONNOTATIVE AND DENOTATIVE
MEANING IN MIDDLE AND LOWER-CLASS CHILDREN

BY



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A THESIS

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ABSTRACT

The present investigation is concerned with the differences in denotative and connotative meaning amongst high and low socio-economic status children in grades three, six and nine.

A study of the theoretical literature on the development of meaning indicated that children's word meanings would tend to move from the personal and action-bound, to close cohesion with perceptual qualities of the physical world, and finally towards a state where they are autonomous, abstract and conceptualized. It appeared that differences between levels of meaning in children of high and low socio-economic status would be in the direction of a slower development towards conceptual meaning in low socio-economic status children.

Three measures of meaning were used:

(1) Brandwin's Mediatlional Level Scale (MLS) is an instrument which sets out to measure level of connotative meaning. The scale gives three scores -- sensori-motor-affective (SMA), perceptual (PER) and conceptual (CON) -- which indicate the prominent level of mediation for the individuals taking the test.

(2) Childrens' spontaneous definitions of the words used in the MLS were classified according to Feifel and Lorge's categorization to give a Recall Vocabulary score (RV) -- an indication of quality of denotative meaning.

(3) The Peabody Picture Vocabulary Test (PPVT) provided a measure of childrens' repertoire of denotative meanings.

The main hypotheses of the study were:

(1) That MLS scores reflect an age-related increase in CON scores and decrease in SMA and PER scores.

(2) That MLS scores reflect relatively lower CON scores and higher SMA scores and PER scores for lower SES subjects than for higher SES subjects.

(3) That RV scores reflect a developmental sequence marked by increase in score with age, and that HSES subjects will obtain higher RV scores than LSES subjects.

(4) That there is no difference in PPVT scores in the two SES groups.

Hypotheses 1 and 4 were confirmed, but only partial confirmation for Hypotheses 2 and 3 was obtained. For the second hypothesis, it was found that SMA scores were significantly lower for HSES subjects only in grade three and that PER scores were significantly lower for HSES subjects only in grade six. RV scores did show significant increases with age, but only at grade three did HSES subjects obtain significantly higher scores on RV than LSES subjects. All the differences in mean MLS scores and RV scores for the different grades and classes were in the expected direction, except at grade nine, where the mean scores for the two SES groups were almost identical.

The study gave support to the idea that meaning is dynamic rather than static and that meanings evolve from the sensori-motor-affective level, to the perceptual level and finally to the conceptual level. The study, however, did not give clear support to the notion that HSES children would more rapidly move from the SMA level to the CON level. A number of possible reasons for the confusion of findings were discussed. Among the points suggested were:

(1) That the small sample of relatively easy words used to measure denotative and connotative meaning was partly responsible for the converging of developmental patterns of meaning in high and low SES subjects in the higher grade.

(2) That MLS items were inadequate especially at the SMA level and needed some modification to provide an accurate measure of connotative meaning, and also that reliability and validity data were lacking for the scale.

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CHAPTER I

INTRODUCTION

The capacity for representation in man, which seems to have evolved to enable him to represent recurrent regularities in his environment, has an important bearing on the development of human culture. Similarly, the development of language in the child has a powerful effect on other areas of the child's development. "Language transforms experience first by creating new channels through which the human environment can act on the child" (Church, 1961, p. 94).

Many aspects of the child's development are affected by the language that is available to him from the immediate family environment, peculiar to his class and culture. It seems that a language form has the effect of orienting an individual in a particular direction from an early age (Bernstein, 1959). This early orientation probably accounts for the different patterns of perception and expression among children from the middle and lower classes, which seem closely related to different language forms.

A good deal of evidence shows that the language of the lower-class child puts him at a disadvantage when he is compared to the middle-class child, especially in the school situation. However, most of the evidence deals with the more easily measured aspects of language, such as written and verbal expression, verbal intelligence, type of grammar and

structure of sentences, or richness of vocabulary. One aspect of language difference in the culturally deprived which has been little studied, yet which seems to be of considerable importance, is meaning.

It seems that word meaning may be a basic ingredient of the different view of the world that language offers. Frazier (1964) points out that: "Today when we say that not all language is equally available to all children, we mean that the meanings built into or conveyed by language are not equally available" (p. 150). Most of our actions, beliefs, feelings and choices are based on our repertoire of meanings (Asch, 1952, p. 646). Luria (1960) proposes that the regulatory influence of speech occurs only when speech is semantically meaningful, whereas Vygotsky (1962) viewed word meaning as the key to understanding thought. The individual's store of word meanings conveys to him a generalized reflection of reality. The development of these meanings is instrumental in helping the individual to simplify and categorize his experience.

The meaning of a word does not seem to be constant over longitudinal developmental stages, nor is it constant for all individuals at the same developmental level. When we say the word "postman" to a five-year-old, it may bring to his mind a ring on the doorbell, the dog barking or a man in uniform; but if we say it to an adult, it may bring thoughts of guilt at an unpaid bill, anticipation of a

friend's letter, or anger at an incompetent system. Suppose, on the other hand, we surmise what the word "school" means to a bright twelve-year-old of middle-class background. His teacher is friendly and encouraging, and his school is modern and progressive. Would we not expect this child's meaning of "school" to differ from that of the twelve-year-old negro boy from a broken-down, ugly school in the ghetto, who is faced by hostility and frustration much of the time?

Heinz Werner and Bernard Kaplan (1963) have postulated an increasing sophistication of meaning during the course of development, which occurs in relatively fixed stages. Development proceeds from action and object-oriented, relatively idiosyncratic symbolization, towards the use of symbols which are more and more removed from their referents. In other words, higher and more abstract meanings progressively emerge. Werner's (1948) division of the development of meaning into three stages, the sensori-motor-affective, the perceptual and conceptual is the basic theoretical framework of this study.

The aim of this study is to show that the developmental progression from sensori-motor-affective to perceptual to conceptual level is somewhat slowed down in children of lower socio-economic status whose language backgrounds may have been meagre. In other words, it is expected that in

grades three, six, and nine, lower-class* children will tend to show a prevalence of sensori-motor-affective and perceptual mediation of meaning rather than conceptual mediation of meaning, while it is thought that middle-class children will tend to use more conceptual mediation of meaning than sensori-motor-affective or perceptual mediation. It is also expected that middle-class childrens' denotative definitions of words will be more abstract and conceptualized than those of lower status children. Labelling and recognition vocabulary, on the other hand, is not expected to be different in high and low socio-economic status children.

*The terms lower-class, low socio-economic status, disadvantaged and low status are used interchangeably in this study, as are the terms middle class, high socio-economic status and high status.

CHAPTER II

BACKGROUND TO THE PROBLEM

Theories of Meaning Development

One reason that meaning has been studied so little is, no doubt, the great difficulty in defining it and understanding what it is. Creelman outlines some of these difficulties:

It would appear that we are still a long way from any kind of inclusive theory of meaning. What has emerged with considerable clarity is that the word 'meaning' refers to so many different concepts, constructs, functional systems, processes and areas of 'experience' that it requires the flexibility of a mountain goat to leap from level to level (Creelman, 1966, p. 209).

First it is necessary to make clear one of the fundamental distinctions usually made by linguists, philosophers or psychologists, with respect to meaning, namely the difference between denotative and connotative meaning. Denotative meaning is generally thought of as the labelling or lexical meaning of a word. It is the association that a word elicits for most speakers of a language, and does not differ markedly from individual to individual. Di Vesta (1966) describes denotative meaning as depending on criterial attributes of objects. Connotative meaning, on the other hand, is thought of as an addition to the explicit primary meaning of a word, peculiar to the individual rather than to the society. Di Vesta says that

connotative meanings depend on non-criterial attributes of objects.

Osgood's explanation of meaning is based on the hypothesis that words represent things because they produce some replica of the actual behaviour towards these things. The stimulus-object originally elicits a behavioural response in the individual, and by successive pairings of the word or 'sign' with the stimulus-object, the word comes to elicit some "minimally effortful and minimally interfering replica of the original response" (Osgood, Suci, and Tannenbaum, 1957, p. 13). This inner response, which tends to be largely covert, is termed by Osgood, a representational mediation process, and as far as he is concerned, it is synonymous with 'the meaning of a sign'. Osgood explains childrens' action tendencies on hearing certain words, in terms of his theory. For example, if a child clenches his hand and moves it up and down, when he hears the word "hammer", he is exhibiting part of the behaviour elicited by the object. Although Osgood's theory does not consider developmental changes in meaning, his writings imply that the representational mediation becomes more covert as the individual develops. He does say that the mediational response could be entirely cortical. In general, however, the implications of the theory are that meaning is simply an aggregate of associations, which are bound to increase as the individual ages, but few assumptions

as to qualitative changes in meaning are made. Osgood's theory has the advantage of being clearly defined, and easily understood, but has the disadvantage of saying little about the nature of the mediational process, and largely ignoring developmental changes in meaning.

Vygotsky (1962) does not ever clearly define meaning, yet a new insight into meaning can be reached by looking at his writings. He sees word meaning as the link between language and thought. Meaning formation, as he sees it, depends on generalization and concept formation as a means of ordering experience.

A word does not refer to a single object but to a group or to a class of objects. Each word is therefore already a generalization. Generalization is a verbal act of thought and reflects reality in quite another way than sensation and perception reflect it (Vygotsky, 1962, p. 5).

Vygotsky insisted that word meaning was not static but dynamic. He describes the development of meaning as going from primitive generalizations to the most abstract of concepts. The child at first finds it difficult to separate the word and the object it denotes. This explains the early speech of the child, which is inseparable from action. The word may appear at first like an actual attribute of the object, rather than a sign of the object. At first, only the connection between objects and words is grasped, but by a long and complicated process of development the connection

between signs and referents is understood. In other words, meaning develops from being closely tied to concrete events and only gradually becomes separated from these into a series of symbols which simplify, abstract, and summarize the concrete events of the real world. Vygotsky appears to be talking of connotative meaning when he describes the 'sense' of a word -- "the sum of all the psychological events aroused in our consciousness by the word" (Vygotsky, 1962, p. 146). He says that meaning (presumably denotative meaning) remains stable while 'sense' changes.

The dictionary meaning of a word is no more than a stone in the edifice of sense, no more than a potentiality that finds diversified realization in speech (Vygotsky, 1962, p. 146).

What makes Heinz Werner's view of language development distinctive, is that he sees the development of language as essentially genetically determined. Development is an orderly directed change in organization. Werner sees man's development taking place in accord with the orthogenetic principle, which states that development progresses from a state of relative lack of differentiation to a state of increasing differentiation, articulation, and hierarchic integration. Man is directed towards knowing, according to Werner, and his tool in knowing the world is the symbol. The symbol has the unique function of representation (unlike signs or signals which lead one to anticipate an event rather than represent it). The development of the

symbol, which represents objects or events in the world, leads to the growth of meaning. Symbols designate objects and events both as denoted and connoted. The early pre-symbolic world of 'things-of-action' is the basis from which symbolic forms emerge and shift towards a world of 'objects-of-contemplation'.

Clearly related to this shift from outward reaction towards inward reflection upon objects is the internalization of sensori-motor patterns. In other words objects are given form, structure, and meaning through inner dynamic schematizing activity which shapes and intertwines the sensory, postural affective, and imaginal components of the organismic state (Werner and Kaplan, 1963, p. 18).

For a word to become meaningful Werner feels that this underlying organizing schematizing process must occur. He compares the concept of dynamic schematization to the idea of anticipatory set.

According to Werner and Kaplan (1963), there are four principle components of symbol situations: the addressor, the addressee, the referent, and the symbolic vehicle. The increasing distancing of these four components as well as the progressive systematization of symbolic forms is basic to the development of symbols. There is a change in all components with time -- the addressor matures, the addressee changes (from parents to peers), the referents become increasingly complex and abstract, and the symbolic vehicles become more conventionalized.

Pointing precedes symbolization since it denotes a concrete object, and precedes the differentiation of reference to an object and representation of the object. At first, words are intimately bound to the concrete situation. Names of objects are treated as actually part of the objects. The distance between the person and the object he is denoting grows, as does the distance between the word and the referent. At first objects are seen as pragmatic 'things-of-action', but this initial externalized sensori-motor pattern by which an object is grasped is transformed into an internalized cognitive schema. The object then becomes more susceptible to representation.

For representation to occur, there must also be a distancing between the person and the symbol. At first words tend to be idiosyncratic and egocentric and therefore meanings are not so easily communicated. With development, the symbols become quite conventionalized so that the communication of meaning is possible. Werner says that the greater the interpersonal distance between individuals, the more autonomous must be the language. In order for efficient communication to occur, the connotations of a word do not have to be identical for two people speaking, but it is necessary for the connotations evoked to occupy a comparable position within each individual's personal network of meaning.

In short, Werner sees the development of meaning as an orderly, directed process with an underlying genetically determined dynamic schematization. Man develops towards knowing, through the symbol, which represents the world for him. Early in development, symbols are closely tied to their referents, which tend to be action-involved. They are highly egocentric and effective in communication only between those who are psychologically close. The direction of language development is towards the autonomization of symbols, so that their form and content become fused. They tend to become highly abstract and conventionalized and useful for communicating to a psychologically distant audience. It seems possible that environment has some effect on the development of meaning. Although Werner lays so much emphasis on the genetic determination of symbol formation, he admits that "the more familiar an object becomes the less time the process of articulation requires" (Werner and Kaplan, 1963, p. 18).

Review of Related Research

There is little experimental evidence which directly relates social class to the development of meaning, yet there is a good deal of research which throws light on the question.

Pavenstedt (1967) described children from lower-class families as frequently not attending to instructions and

needing to rely on concrete demonstrations to translate instructions into actions.

Mitchell (1957) in a study which compared the factorial structure of mental abilities in high and low status groups, found that the mental abilities of low status children were less differentiated than those of high status children. This was thought to be due at least in part to the low Verbal Meaning and Word Fluency performance of low status children, which handicapped them in tests containing even the simplest of verbal instructions.

Bernstein (1958, 1960) describes the language of lower-class children and adults as 'restricted'. It is characterized by short grammatically simple utterances, a small range of syntactical alternatives, the regular use of simple phrases and sentences and a small vocabulary. Middle-class children, on the other hand, more frequently use an 'elaborated code', which is characterized by greater individual differences, more discrimination in terms of intent, and a larger selection of alternatives in terms of vocabulary and structure. There is also a higher degree of modification and qualification and more complex sentences in the elaborated code. These language codes have important implications for the development of meaning. Since the middle-class child is pre-disposed towards the ordering of symbolic relationships, the search for new relationships

and the objectification of experience, he is likely to develop an autonomous symbol system which is not tied to the concrete environment.

Bernstein says (1959) that lower-class individuals operate on a lower level of generality in which descriptive, concrete, visual and tactile symbols are employed. Such symbols tend to emphasize the emotive rather than the logical aspects of meaning. However, the complex structure of middle-class language tends to lead to the use of the same words in a great variety of different contexts. Context appears to be an important aspect of the development of meaning (Werner and Kaplan, 1952). Bernstein says that in middle-class speech the formal possibilities of sentence organization are used to clarify meaning and to make it more explicit.

According to Frazier (1964), many of the lower status children who are considered poorly language actually have quite a lot of language. They know the basic words appropriate to their grade level, but although the words are in the repertoire, they lack the background experience necessary for the manipulation of language in structured situations. The child does not have the experience to verbalize certain meanings which the school values.

Siller (1967), studying the form of symbolism and degree of abstractness-concreteness in concept formation

among two social classes, found that higher class children showed the most advanced development of concepts on all tests of concept formation, and chose more concept definitions of an abstract type.

John (1963) examined labelling, relating and categorizing behaviour in relation to social class, and concluded that middle-class children have an advantage over lower-class children in tasks requiring precise and abstract language.

Deutsch (1965) found a cumulative deficit in language retardation in lower status children between the first and fifth grades. He also found a "deficiency based on class and race in the measures which reflect abstract and categorical use of language as opposed to denotative and labelling usage" (Deutsch, 1965, p. 85). Deutsch regarded labelling, relating and categorizing as levels of increasing complexity of language. He found that as level of complexity of function required in tasks increased, so did the negative effects of social class.

Hess and Shipman (1965) found that lower-class negro mothers were higher on relational and descriptive-global responses on the Sigel Concept-Sorting Task than middle-class mothers, who tended to be higher on descriptive and categorical responses. Relational responses are more subjective and tend to reflect a propensity for relating objects to

personal concerns, in contrast to descriptive and categorical responses, which are more objective and detached, more general and more abstract. Categorical responses involve more efficient strategies of information-processing, and more orderly and complex organization of stimuli. Hess and Shipman say that culturally deprived backgrounds lack meaning, in that the environment contains a preponderance of behaviour unrelated to the context in which it occurs, the motivation of the participants and the goal of the task. "The central quality involved in the effects of cultural deprivation is the lack of cognitive meaning in the mother-child communication system" (Hess and Shipman, 1965, p. 870).

In a recent study, Olim, Hess and Shipman (1968) obtained measures of language from stories told by mothers to children based on a picture from the Childrens' Apperception Test. They analysed the structure of the language and classified it according to whether it was characteristic of restricted or elaborated codes. Lower-class mothers used a much higher ratio of concrete nouns or verbs to abstract nouns and verbs, than did middle-class mothers. In fact, lower-class mothers used a more restricted type of language than middle-class mothers.

One of the approaches which has been taken to understanding the development of meaning, has been to examine

the nature of childrens' word definitions. As early as 1916, Terman noted that qualitative differences in childrens' word definitions could reveal underlying differences in the quality of intellectual processes. Feifel and Lorge (1950) examined the nature of these processes by studying the responses of children on the Form L Stanford-Binet Vocabulary Test. They set up a hierarchical classification system in order to judge the quality of the responses. The categories were as follows, starting with the most superior category: Synonyms; Use and Description; Explanation; Demonstration, Illustration, Repetition, and Inferior Explanation; Error Responses. The classification system was based on Feifel's findings that these types of responses were found to occur at different developmental levels in children. Nine hundred children who ranged in age from six to fourteen, were tested by Feifel and Lorge. Children of age nine and older were found to use synonyms most frequently, whereas six and seven-year-old children preferred use and description definitions. Explanation was chosen least of all between six and nine but then became second only to synonyms. The use of the error category showed a steady decline as children got older. Feifel and Lorge concluded that the word definitions of younger children emphasized the concrete, particular aspects of words, whereas older childrens'

definitions are increasingly generalized and stress the abstract or 'class' features of words.

Labercane (1968), using the Feifel-Lorge technique of classifying recognition vocabulary, found that low socio-economic status children operated at a lower level of conceptualization than did middle-class children. Moreover, he found that the upper socio-economic status group showed an increasing progression towards a more abstract kind of response, whereas the lower status group displayed an increasing regression towards a more concrete and relatively inferior kind of response.

Small (1957) investigated changes in connotative meaning with age with the Semantic Differential technique. Two hundred and seventy-five third, sixth, and ninth grade boys and girls rated twenty-four concepts on a sixteen scale, nine step Semantic Differential. Three scales were selected to represent each of Osgood's three major dimensions -- the evaluative, potency, and activity. Factor analysis indicated that the semantic structures were essentially similar across the different age and sex groups. The only consistent age difference to appear in the study was the tendency for the amount of variance accounted for by the evaluative factor to increase somewhat with age. The results are to some extent discrepant with what would be expected on the basis of developmental theory, although the increasing influence

of the evaluative factor does suggest an increase in the conceptual nature of mediation with age. It is probable that the apparent similarity of structures across age groups was due to the presence of parallel but different structures.

Sigel (1953) studies the different classification behaviour of children of seven, nine and eleven. The subjects were asked to sort a number of objects by putting together 'the things which go together'. The seven-year-olds tended to use mainly perceptual cues to classify, the nine-year-olds used about half conceptual and half perceptual classification techniques, while the eleven-year-olds almost always used conceptual groupings. In other words, there was a developmental progression away from perceptually based classification towards conceptual classification.

Brandwin (1965) has the following view of changes in word meaning:

Concern with changes in word meaning refers to fundamental structural and psychological changes in the symbolic process and not solely to quantitative changes in the sequence and rate of acquisition of structural units of language, or to the enrichment and strengthening of associational bonds between word and meaning (Brandwin, 1965, p. 344).

Brandwin finds the Semantic Differential inadequate for studying developmental changes in meaning, because it tells nothing of the nature of the mediation taking place when a semantic differential rating is made. Similar scale ratings

may be made at different stages in development, yet the underlying symbolic activity may be quite different.

Thus both an adult and a young child may make use of the adjectives 'good' or 'bad' but these terms may connote an abstract, moral judgement for the adult and have a highly concrete, personal reference for the child (Brandwin, 1965, p. 345).

Brandwin bases his analyses on Werner's theoretical position and divides the mediational levels of connotative meaning into sensori-motor-affective, perceptual and conceptual.

Brandwin found that the mediational level scores indicated an increase in the use of higher level mediation as the age of his subjects increased. Two major spurts of conceptual growth occurred, the first between the seven and nine-year-old groups and the second between the eleven and fourteen-year-old groups. An additional sharp increase in the use of higher level mediation was found to occur between fourteen and nineteen years. The seven, nine, eleven and fourteen-year-old subjects were school children and the nineteen-year-old subjects were university freshmen. The effect of university education may have contributed to the increase in higher level mediation for the oldest age group. In general, the pattern of changes was quite similar for both boys and girls.

Antecedents to the Growth of Meaning

We view early experience as a time when the child begins to learn ways of sorting and ordering the mass of information that his input modalities bring to him, developing his techniques for selecting or ignoring stimuli that reach him from internal and external sources. Part of the role of the socializing adult in this early experience is to give the child categories of thought and ways of dealing with information with which he must cope. Their strategies are learned in interaction with the total environment, particularly with other persons, and in this early learning process the mother plays a central and perhaps dominant part (Hess and Shipman, 1966, p. 3).

Social class is being taken as a key variable in this study, yet it seems that one of the most important facets of social class influential in the development of language is the socialization practices typical of a given class. The argument that social class is a gross variable, and that simply obtaining relationships between social class and later behaviour tells us little about how the child's experience patterns his behaviour, is a convincing one. Yet the process of research tends to move from an examination of the behaviour typical of a social class towards a more detailed analysis of the relevant dimensions of social class and how they cause change. There is little doubt that social class is not a unitary variable. However, this is not altogether a disadvantage. Kohn (1963) finds it useful:

... precisely because it refers to more simple educational level, or occupational level, or occupation, or any of the large number of correlated variables. It is useful because it

captures the reality that the intricate interplay of all these different variables creates different basic conditions of life (p. 471).

The problem of cultural disadvantage is very pressing. An initial step in its solution is to describe as carefully as possible the direction and nature of disadvantage, so that it may be compensated for. At the same time, it is necessary to reach an understanding of how social class affects development, in order to try to change the basic conditions of life which cause deprivation.

The literature presents a general picture of more frequent use of authoritarian, restrictive techniques of discipline in lower-class families, and more democratic, 'psychological' techniques in the middle classes. Middle-class mothers tend to use praise and withdrawal of love as methods of control (Maccoby and Gibbs, 1954) while lower-class mothers tend to use more physical punishment (White, 1957). The outstanding feature of lower-class methods of child-rearing is their inhibitory nature (Bronfenbrenner, 1967). There is a focus on the parents' retraining role rather than their supportive role, in lower-class families (Kohn, 1960). Lower-class mothers use more commands without explanation and less positive reinforcement in controlling their children (Kamii and Radin, 1967).

One important aspect of the restrictive methods of control used by lower-class families is that restricted

language models are presented to the child. Strict discipline often means that limited language interaction occurs between parents and children. After observing the interactions of middle and lower-class mothers and their children, Hess and Shipman (1965) concluded that lower-class mothers tended to act and guide their children impulsively, while middle-class mothers used verbal and non-verbal cues to encourage their children to reflect, to look ahead and anticipate the consequences of their actions. The middle-class child is stimulated and exercised by a more elaborate and complex communication on the part of the mother. The lower-class child, however, is asked only to attend to an uncomplicated message, and to make a simple conditioned response.

It seems likely then that authoritarian control systems will tend to slow down the process of development of meaning. External methods of control directed towards passive rule following will tend to fix symbols in 'connative-pragmatic' terms. Techniques of control which encourage individual choice and action and self-control will lead the individual away from seeing himself as a passive responder to the environment. It is more likely that such a person will develop symbols that are not bound to a concrete external form.

Werner's (Harris, 1966) description of high developmental levels of thinking is strongly reminiscent of

Bernstein's or Hess's description of the middle-class parent.

... the organism becomes increasingly less dominated by the immediate concrete situation: the person is less stimulus bound and less impelled by his own affective states. A consequence of this freedom is the clearer understanding of goals, the possibility of employing substitute means and alternative ends (p. 127).

Purpose of the Study

The present investigation is a cross-sectional study of meaning, both connotative and denotative, in a middle and lower-class group of children. The general purpose was to test the assumption that middle-class children operate at a more advanced mediational level than do lower-class children. It was expected that the connotative meanings of lower-class children would tend towards concreteness, while those of middle-class children would be more abstract and conceptual. Denotative meaning was expected to be similar in the two groups when measured by a recognition task, but more developed in the middle-class group, when measured by a recall task.

Although social class, along with grade level were the two variables of most interest in this study, the effect of sex was also investigated. It was not possible to control for IQ or age in the study, but both were taken from the school records in order to provide a description of the sample.

Brandwin's Mediation Level Scale was chosen to measure connotative meaning, because of its appropriateness to a developmental study, and because it had previously been demonstrated to reveal age-related trends in mediation level. An attempt was made at content validation of the Mediation Level Scale, because of its experimental nature. Denotative meaning was measured in two ways. The Peabody Picture Vocabulary Test was thought to be a good measure of ability to recognize the correct labels for referents. The second measure of denotative meaning was the Recall Vocabulary score. This was found by taking children's definitions of stimulus words used on the Mediation Level Scale, and scoring them according to the Feifel-Lorge technique.

CHAPTER III

PROCEDURE

Sample

The subjects in this study were ninety-six children selected from Grades three, six and nine of the Separate School System in Edmonton. They were drawn from two Junior-High-Elementary schools, one in a low socio-economic (LSES) area and one in a high socio-economic area (HSES). The schools were selected on the basis of Kupfer's (1967) sociological survey of the City of Edmonton. Disadvantaged areas, such as the one from which the LSES school was selected, are described by Kupfer. They are said to have a relatively high proportion of foreign-born and immigrant populations, high fertility levels, low educational levels, a preponderance of manual and semi-skilled workers, a high proportion of females working, low average income, and older and more deteriorated housing. Conversely, the higher SES areas, from which the HSES school was selected, are characterized by low proportions of foreign-born and immigrant populations, moderate to high fertility levels, high educational levels, a preponderance of technical, professional and managerial occupations, high income levels and newer owner-occupied housing.

Information gathered during the present study indicates

that the HSES sample had a higher fertility level than did the LSES sample. The mean number of children per family for the HSES sample was 5.3, and for the LSES sample was 3.4. The difference is not so surprising as it first appears to be. Kupfer (1967) argues that fertility levels are converging between classes, and that social rank factors such as income and occupational background do not influence fertility as much as they used to. Religion is much more of an influence on fertility. Since this is a Roman Catholic sample, it may be somewhat atypical in this respect.

It was also found in the present study that 51.16 per cent of the LSES mothers worked while only 4.16 per cent of the HSES mothers worked. The mean rating of the LSES sample on the Blishen scale was 29.80 and for the HSES sample was 71.51. The mean IQ level in the HSES sample was 9.5 points higher than the IQ for the LSES sample. That the LSES sample had a poorer level of educational attainment is indicated by the fact that the LSES children were on the average, 5.50 months older than the HSES children.

The method of selecting subjects was as follows. In each of the schools from which the subjects were chosen, one grade three, one grade six and one grade nine class was made available by the principal for the study. Using information from the school records, sixteen subjects were taken from each of the two grade three, six and nine classes, on the following basis:

(1) All new Canadian children, who were not proficient in English, were excluded. It was not possible to exclude bilinguals from the study, since there was a very high proportion of them in the LSES school, and only one class was available for selection of subjects, at each grade level. However, an attempt was made to select children born in Canada. Only a small portion of the final sample did not meet the latter requirement.

(2) Children from homes where only one parent was present were excluded, as were adopted children.

(3) All children who were found totally unable to read the stimulus materials were excluded. Only four children were excluded on this basis.

(4) Any children who were not typical of the socio-economic area, as far as could be determined by using a Blishen rating of occupational status of the father were excluded. In other words, the children of lowest Blishen rating in the LSES school and highest in the HSES school who met the other criteria, were selected.

(5) All Metis and Indian children were excluded.

Instruments

The Blishen Socio-Economic Index for Occupations in Canada. Since the main criterion of social class used in this study was area, based on Kupfer's sociological analysis

of Edmonton, the Blishen index was used as an additional check to exclude atypical subjects from each sample.

Despite the use of a scale which concentrates on the criterion of occupation, it is not being suggested that social class is a unitary variable. It is recognized that social class is made up of a network of interrelated variables (some of which Kupfer measured in his study) such as educational level, housing and size of family. However, such surveys as Kupfer's are unable to depict the general environment of the middle and lower-class home; the values, attitudes, type of personal interactions, and typical child-rearing methods.

Having made clear that social class is taken to be a complex interplay of influences, it is argued that occupational status is an extremely reliable indicator that these other influences exist. Sears, Maccoby and Levin (1957) say that class status is more a function of occupational level than of any other single factor. Kohn (1963) emphasizes that prestige based on occupational level is a fundamental criterion of class, and believes that the simple fact of being either a manual or a non-manual worker has profound influences on socialization practices. Kohn also points out that middle-class occupations "deal more with the manipulation of interpersonal relations, ideas and symbols, while working-class occupations deal more with the manipulation

of things" (1963, p. 476). This necessity for self-direction in middle-class occupations and rule-following in lower-class occupations has a strong effect on the inculcation of ideas from one generation to the next. Kahl and Davis (1955) found that occupational position and quality of house and residential area were variables which underlay nineteen other different indicators of socio-economic status. It was with these arguments in mind that it was decided to use the Blishen index in this study.

In 1958, Blishen compiled an occupational scale using the 1951 census data, which classified occupation according to a variety of characteristics, including income and years of schooling. Correlations between the Blishen ratings and ratings of occupational prestige were found to be very high (.94 between Canada and the U.S.) indicating that the occupational scale reflected the same variables as did prestige scales.

A revision of the Blishen scale, using 1961 census data was made in 1967. To construct this scale, the percentage of males whose occupation had an income of over \$5,000 and the percentage who had attended at least fourth year high school was calculated for each occupation. In order to include some measure of the social standing of each occupation, Pineo-Porter scale scores, which indicate occupational prestige, were used. This was achieved by

constructing a regression equation with Pineo-Porter scores as the dependent variable, and income and educational levels as the independent variables. The regression weights so constructed were then applied to all three hundred and twenty occupations. The 1967 index was the one used in this study.

Brandwin's Mediational Level Scale (MLS). The MLS was thought to be most appropriate for this study for several reasons:

(1) The only other quantitative instrument, suitable for measuring connotative meaning, known to the writer, is Osgood's Semantic Differential. Theoretical difficulties already mentioned (see pp. 18-19) prevent this instrument from being suitable.

(2) Brandwin's MLS appears to be eminently suitable for a study which examines developmental changes in meaning. Despite lack of data concerning reliability and validity, this scale has been shown to reveal consistent and lasting age-related trends in choice of items from the three levels.

(3) It is possible to use the scale with a sample of subjects of widely disparate age.

In order to make some contribution to the content validity of the scale, twelve judges were asked to classify each of the thirty-six MLS phrases, according to Werner's three developmental levels. The twelve judges were doctoral

students participating in a senior seminar in Developmental Psychology, and faculty members interested in the area. (See Appendix A for detailed procedure).

The MLS scale was constructed by Brandwin in 1964. Twelve stimulus words were chosen to be judged with respect to their connotative meaning. The words were checked against childrens' word frequency tables to assure their familiarity to younger children. The words MONEY, DEATH, TRUTH, THIEF, HOME, SIN, GOD, SPIDER, ME, SHAME, PEACE, DIRT were chosen in order to include six relatively concrete words MONEY, THIEF, HOME, SPIDER, ME, AND DIRT; and six words of abstract reference DEATH, TRUTH, SIN, GOD, SHAME, and PEACE. There were also an equal number of words of positive connotations -- MONEY, HOME, ME, TRUTH, GOD, PEACE and negative connotations -- THIEF, SPIDER, DIRT, DEATH, SIN and SHAME.

Using Werner's three developmental stages of cognition as a framework, Brandwin constructed a scale of thirty-six phrases, against which the twelve stimulus words are judged. Twelve of these phrases are thought to be representative of each of the three levels which are: (a) sensori-motor-affective, (b) perceptual, (c) conceptual. The complete list from Brandwin's thesis (p. 32) is reproduced below in Table I.

TABLE I

MLS ITEMS REPRESENTING THE THREE GENETIC LEVELS

Sensori-Motor-Affective	Perceptual	Conceptual
(Level 1)	(Level 2)	(Level 3)
Eating chocolate cake	A long snake	A useful idea
Starting to cry	A pink ribbon	A forgotten promise
Floating on water	A broken window	A secret hope
Touching a hot stove	A new automobile	An extra bother
Hearing a scary scream	A diamond ring	A deeper need
Kissing someone nice	A sharp knife	A lost chance
An itchy feeling	A picture book	A possible reason
Playing with finger paint	A dark cave	A usual problem
Smelling perfume	An old castle	A further worry
Falling down a hole	An iron gate	A special wish
Laughing at a joke	A baby rabbit	A hidden thought
Having a toothache	A loaded gun	An important answer

In order to allow for childrens' limited capacity for concentration, Brandwin divided the thirty-six phrases into three lists of twelve items, each list contains four phrases representative of each level. These lists are reproduced below in Table II.

TABLE II
MEDIATIONAL LEVEL SCALE LISTS A, B, AND C

List A	List B	List C
A useful idea A long snake Eating chocolate cake A forgotten promise A pink ribbon Starting to cry A secret hope A broken window Floating on water An extra bother A new automobile Touching a hot stove	A diamond ring Hearing a scary scream A deeper need A sharp knife Kissing someone nice A lost chance A picture book An itchy feeling A possible reason A dark cave Playing with finger paint A usual problem	Smelling perfume A further worry An old castle Falling down a hole A special wish An iron gate Laughing at a joke A hidden thought A baby rabbit Having a toothache An important answer A loaded gun

Testing Procedure

A three page booklet for recording responses was used. (See Appendix B). Each page contained the twelve stimulus words with three spaces beside each word, for the recording of choices of MLS items. The first page has List A on it, the second page List B and the third page List C. Because subjects in grade six and nine filled out the booklets themselves, the order was randomized for each subject.

Limitation of time, and differences in comprehension at the three grade levels, led to the use of a slightly different procedure for the grade three subjects. The

following procedure was used for grade three children who were tested individually: (See Appendix C for detailed instructions).

(1) Each MLS phrase was reproduced on a strip of cardboard which was backed with felt. The fact that the items were on felt strips allowed them to be rapidly attached to a velvet board in any order, and easily changed for another list.

(2) The child was asked to read the three lists, which were attached one at a time to the board; at this stage non-readers were eliminated from the sample. Then the procedure outlined below was carried out with a number of practice words (usually three) until the subject comprehended what was required of him.

(3) The experimenter presented a 3" x 6" card with a stimulus word on it, and asked the child to point to three phrases, out of the list which was on the board, which the word made him think of. The stimulus words were all presented in this manner (in random order) with the first list.

(4) The words were presented as in (3) with the second list and finally with the third list. The order of presentation of the lists was random for each subject.

(5) The experimenter noted the subjects' three responses for each word, each time it was presented. During the experiment, the subject judged the twelve words against

a list of MLS phrases three times. Since three responses were required each time a word was presented, and since each word was presented three times, each list elicited thirty-six responses, and there were a total of one hundred and eight responses for each subject.

The grade six and nine subjects were tested in groups of four. The procedure followed was: (See Appendix C).

(1) In order to acquaint the subjects with the task, the velvet board and stimulus cards were used. Each subject was asked to read aloud one of the lists. A practice session was carried out with three words, each of which was presented with one of the three lists.

(2) Using a diagram on the blackboard, the experimenter indicated that the numbers of the MLS items chosen were to be marked in the spaces to the right of each word, on the record form.

(3) When all subjects understood the task, they were told to go ahead and fill in their responses in the record booklet. The following additional instructions were given.

(4) The twelve words on each list were written on the blackboard in random order (different for each group of four). The subjects were asked to judge the words in the order in which they were written on the blackboard. They were also told to use the lists in random order. For instance, one group would be asked to begin with List C, and then do List B and finally List A. (Note that the order

of MLS phrases in the three lists was different for each subject).

Scoring

The scoring procedure for the MLS consists of counting the number of responses which fall into each of the three categories. Hence each individual has three scores on the MLS.

- (1) Number of sensori-motor-affective (SMA) responses.
- (2) Number of perceptual responses (PER) responses.
- (3) Number of conceptual responses (CON) responses.

Recall Vocabulary

The Feifel-Lorge technique for scoring childrens' vocabulary responses is based on evidence which shows that:

... growth with age occurs not only in the vocabulary range but in the character of word definitions as well, and that the quality and completeness of word definition changes considerably from the lower to the higher grades (Feifel and Lorge, 1950, p. 3).

Younger children tend to define words in terms of use and description, whereas older children reveal increasingly more conceptual definitions, by using synonym-type responses. Since what is being measured is the child's ability to explain the lexical meaning of words in terms of their criterial attributes, it is thought that quality of denotative meaning is being assessed, when childrens' word definitions are classified according to the Feifel-Lorge technique.

In this study the words which were defined, were the same twelve words used by Brandwin to examine connotative meaning. The purpose of using these words was to make the Recall Vocabulary scores directly comparable to scores on the MLS. Recall vocabulary scores are an index of denotative meaning using spontaneous word definitions, while MLS scores are an index of connotative meaning, using a forced-choice technique.

Feifel and Lorge set up a five category classification system for judging the quality of childrens' word meaning. The five categories are: Synonyms; Use, Description, and Use and Description; Explanation; Demonstration, Repetition and Illustration and Inferior Explanation; Errors. Reproduced in Table III are a number of examples of each category (Feifel and Lorge, p. 4).

After the sixteen subjects from each grade had been seen and tested individually and in groups of four, the experimenter administered the Recall Vocabulary task to the complete group of subjects from one grade.* It was emphasized by the experimenter that the type of meaning being asked for was the kind of meaning found in a dictionary, and not the type of meaning we had been looking at before in the MLS scale.

*All Recall Vocabulary responses were obtained in written form.

TABLE III

EXAMPLES OF RECALL VOCABULARY RESPONSES

Synonym Category

- | | |
|--|---|
| (a) Synonym unmodified: | Orange = a fruit |
| (b) Synonym modified by use: | Straw = hay that cattle eat |
| (c) Synonym modified by description: | Gown = long dress |
| (d) Synonym modified by use and description: | Eyelash = hair over the eye that protects you |
| (e) Synonym qualified as to degree: | Tap = touch lightly |

Use, Description, and Use and Description Category

- | | |
|--------------------------|------------------------------------|
| (a) Use: | Orange = you eat it |
| (b) Description: | Straw = it's yellow |
| (c) Use and Description: | Orange = you eat it and it's round |

Explanation Category

- | | |
|------------------|---|
| (a) Explanation: | Priceless = it's worth a lot of money |
| | Skill = being able to do something well |

Demonstration, Repetition, Illustration and Inferior Explanation Category

- | | |
|---------------------------|-----------------------------------|
| (a) Demonstration: | For words like tap, eyelash, etc. |
| (b) Repetition: | Puddle = a puddle of water |
| (c) Illustration: | Priceless = a gem |
| (d) Inferior Explanation: | Scorch = hot |

Error Category

- | | |
|-------------------------------------|-----------------------------|
| (a) Incorrect Demonstration: | Eyelash = points to eyebrow |
| (b) Misinterpretation: | Regard = protects something |
| (c) Wrong definition: | Orange = a vegetable |
| (d) Clang association: | Road = raw; Skill = skillet |
| (e) Repetition without explanation: | Puddle = puddle |
| (f) Omits: | When the word is left out |

Scoring

A Recall Vocabulary score was found by using Labensohn's (1967) numerical weightings for each category. The following are the values that she assigns to each category:

Synonyms	-	4
Use and Description	-	3
Explanation	-	2
Inferior Explanation	-	1
Error	-	0

The reliability of the scoring was checked by assessing inter-scorer agreement by the Arrington formula. Word definition, types on cards, were randomly drawn from the total sample and scored independently by two individuals. The interscorer agreement was 88 per cent. (See Appendix D for examples of responses).

The Peabody Picture Vocabulary Test (PPVT)

Since the present study was concerned with examining denotative and connotative meaning in middle and lower class children of different ages, it was felt that in addition to the measure of recall vocabulary, it would be helpful to use an instrument which measured recognition vocabulary. The test was therefore useful, not only for the purpose of comparing connotative and denotative meaning, but for comparing recognition and recall vocabulary. The value of the PPVT in this study was not as a measure of functional

vocabulary but as a measure of face familiarity with words. While the Recall Vocabulary score indicates sophistication of meaning, the PPVT indicates size of recognition vocabulary. The PPVT was particularly suitable for use with the LSES sample, since it is interesting and does not provide failure experiences. Although none of other tests used involved failure, the PPVT was found to be a particularly good test for establishing rapport, especially with smaller children. In this study, the PPVT was given first with the subsidiary aim of helping to achieve rapport.

The PPVT is a verbal intelligence test consisting of a series of one hundred and fifty plates, each with four pictures on it. The examiner reads a stimulus word, and the subject is asked to indicate the picture which best illustrates the word. It is an untimed individual test, easily administered in about fifteen minutes. It can be used with subjects between the ages of two and a half and eighteen.

The standardization sample of the test is somewhat limited since it consists of 4,012 white children from around Nashville, Tennessee. However this is not of great importance to this study, since the test was used for purposes of comparing two groups, and no IQ's or standard scores were used. The test has been demonstrated to have moderate reliability coefficients ranging from 0.67 to 0.84 (alternate form reliabilities). Validity data are still

sparse but correlations with the Stanford-Binet are in the order of the 0.70's and the low 0.80's.

Hypotheses and Analysis of Data

Hypothesis 1. Mediation level scores will reflect a developmental sequence marked by age-related increase in conceptual scores (CON) and decrease in sensori-motor-affective (SMA) scores and perceptual scores (PER).

Analysis. (1) Product-moment correlations between age, and SMA, PER, and CON scores were computed.

(2) Three two-way analyses of variance were carried out with a 2 x 3 factorial design. The two independent variables were grade level and social class, and SMA, PER and CON scores were dependent variables.

Hypothesis 2. Mediation level scores reflect relatively lower CON scores, and higher SMA and PER scores for low SES subjects.

Analysis. (1) The same two-way analysis of variance used for Hypothesis 1 was used to determine the effects of social class on mediation level scores. Where there was a significant interaction effect between SES and grade, an analysis of Simple Effects was computed to find out at which grade level SES had an effect on MLS score.

Hypothesis 3. Recall Vocabulary (RV) scores reflect a developmental sequence, marked by increase in score with age. High SES subjects will obtain higher RV scores than low SES subjects.

Analysis. (1) The product-moment correlation between age and RV score was calculated.

(2) A two-way analysis of variance in a 2 x 3 factorial design with grade level and SES as the independent variables, and RV scores as the dependent variable was carried out, in order to determine the effects of grade level and SES on RV score. Simple effects analysis was carried out if there was a significant interaction effect between grade level and SES, to find out at which grade level SES had an effect on RV scores.

Hypothesis 4. There is no difference in PPVT scores in the two social class groups.

Analysis. A two-way analysis of variance with grade level and SES as the independent variables, and PPVT score as the dependent variable, was carried out, in order to determine the effect of SES on PPVT score.

Hypothesis 5. There is no difference in MLS scores, RV scores, or PPVT scores due to sex.

Analysis. Five one-way analyses of variance were computed with sex as the independent variable and SMA, PER, CON, RV and PPVT scores as the dependent variables.

Hypothesis 6. Subjects who obtain higher scores on RV, will also obtain higher CON scores and lower PER and SMA scores.

Analysis. Product-moment correlations were computed between RV scores and CON, PER and SMA scores.

CHAPTER IV

RESULTS

Location of Tables

The intercorrelations relevant to all the hypotheses are shown in Table IV below. The analysis of variance data is presented in Appendix E (pp. 90-95) which contains Tables V, VI and VII.

TABLE IV

INTERCORRELATIONS AMONG VARIABLES

N=96 Variable	1	2	3	4	5	6	7
Age	1.00	-0.40**	-0.24*	0.26**	-0.26**	0.74**	0.75**
SMA		1.00	0.27**	-0.26**	0.10	-0.37**	-0.40**
PER			1.00	-0.27**	-0.03	-0.29**	-0.19
CON				1.00	0.01	0.25*	0.16
IQ					1.00	0.20*	0.22*
RV						1.00	0.77**
PPVT							1.00

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Hypothesis 1

The first hypothesis predicted that there would be a greater number of conceptual responses for older children,

and a smaller number of perceptual and sensori-motor-affective responses for older children. Since there was a significant positive correlation between age and CON scores ($r=0.26$, $p < 0.01$) and a significant negative correlation between SMA scores and age ($r=-0.40$, $p < 0.01$) and between PER scores and age ($r=-0.24$, $0.05 > p > 0.01$), the first hypothesis is confirmed (See Table IV). The analysis of variance also showed a significant amount of variance due to grade level (See Table V, Appendix E). The effect of grade level on the scores was significant at the 0.01 level. Newman-Keuls tests reveal that:

(1) Differences in the amount of variance due to grade level on SMA scores are significant between grade three and grade nine and between grade six and grade nine (at the 0.01 level of significance) in the hypothesized direction, but there were no significant differences in SMA scores between grade three and grade six.

(2) Differences in PER scores between grade three and grade six and between grade three and grade nine were significant at the 0.05 level. All the differences were in the expected direction but did not reach significance between grade six and grade nine.

(3) Differences in the amount of variance due to grade level on CON scores are significant at the 0.01 level between grade three and grade nine, and at the 0.05 level between grade six and grade nine in the hypothesized

direction. There was no significant difference in CON scores between grade three and grade six (See Figure 1).

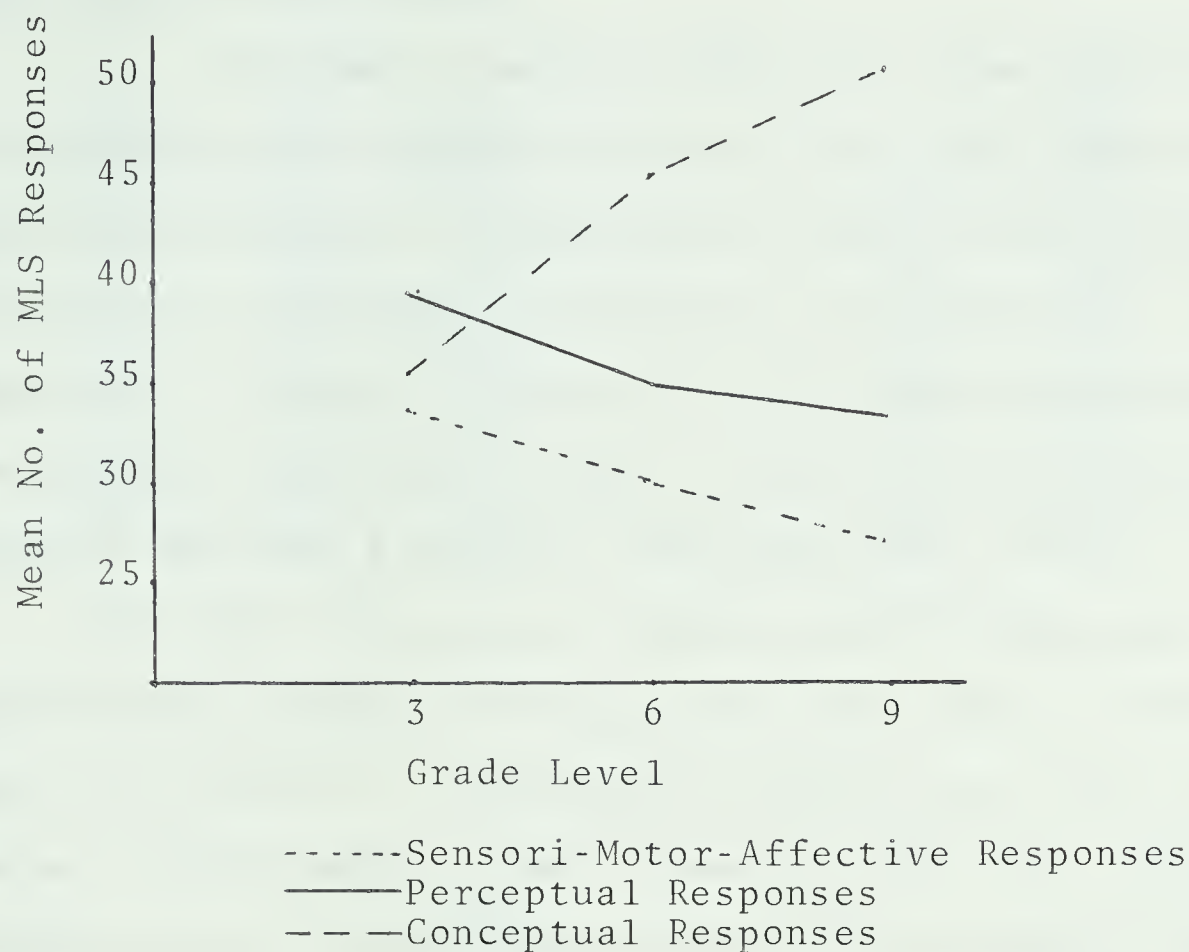


FIGURE 1

THE EFFECT OF GRADE LEVEL ON MLS RESPONSES

Hypothesis 2

The second hypothesis predicted that low status subjects would tend to obtain lower CON scores, and higher PER and SMA scores. The analysis of variance (See Table V, Appendix E) revealed that the amount of variance due to SES on SMA, PER, and CON scores was not significant. However, the interaction effect between grade level and SES was significant for all three scores (SMA, 0.05, > $p > 0.01$;

PER, $0.05 > p > 0.01$; CON, $0.05 > p > 0.01$). An analysis for simple effects was carried out (See Table VI, Appendix E). This analysis shows that:

(1) The SMA scores of LSES grade three subjects are significantly higher ($0.05 > p > 0.01$) than those of HSES grade three subjects. Differences in SMA scores due to SES are not significant in grade six or grade nine. Inspection of Figure II shows that the differences were in the expected direction, except at grade nine where the LSES subjects obtained a slightly lower mean SMA score.

(2) The PER scores of LSES grade six subjects are significantly higher ($0.05 > p > 0.01$) than those of HSES grade six subjects. Differences in PER scores due to status are not significant in grade three or grade nine. Again the differences are in the expected direction except at grade nine.

(3) There were no significant differences in CON scores due to SES at any grade level. The differences were, however, in the expected direction, except at the grade nine level. That is LSES subjects obtained lower CON scores at grade three and grade six, but slightly higher ones in grade nine.

Hypothesis 2 was therefore only partially confirmed. LSES subjects had significantly higher SMA scores only in grade three, and significantly higher PER scores only in grade six. CON scores were not significantly lower for

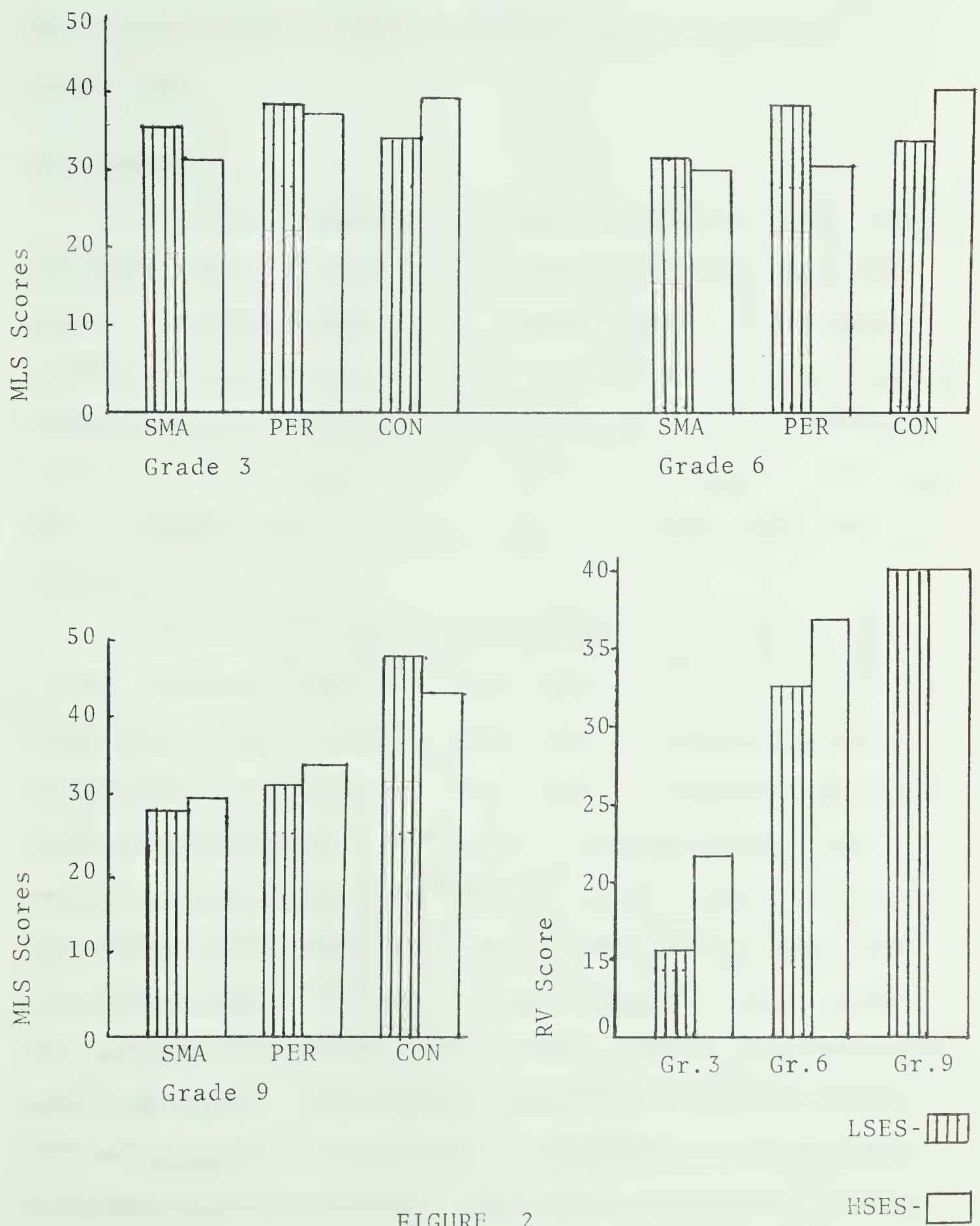


FIGURE 2

THE EFFECT OF SES ON MLS AND RV SCORES
IN GRADE 3, 6, AND 9

LSES subjects at any grade level. The differences in MLS scores were all in the expected direction, except in grade nine.

Hypothesis 3

The third hypothesis predicted that RV scores would increase with age, and that LSES subjects would tend to obtain lower RV scores at all grade levels. There was a highly significant correlation ($r=0.74$, $p < 0.01$) between RV score and age, confirming the first part of the hypothesis. There was also a significant amount of variance in RV score due to grade level, at beyond the 0.01 level (See Table V, Appendix E).

There was a significant amount of variance in RV score, at beyond the 0.01 level, due to SES. Since the interaction effect between grade level and SES was also significant at beyond the 0.01 level, an analysis of simple effects was computed (see Table VI, Appendix E). The analysis revealed that differences in RV scores in the two SES groups were significant only at the grade three level (at beyond the 0.01 level of significance). The F ratio for grade six approached but did not reach significance at the 0.05 level. The effect of social class on RV scores did not approach significance. Hypothesis 3 is therefore only partially confirmed. RV scores do increase with age, but they are significantly higher in HSES subjects only at

grade three, although differences at grade six are in the expected direction (See Figure II).

Hypothesis 4

The fourth hypothesis predicted that there would be no significant differences in PPVT scores due to SES. This hypothesis was confirmed, since there was no significant amount of variance due to SES on PPVT scores, nor was there any significant variance due to interaction between SES and grade level (See Table V, Appendix E).

Hypothesis 5

Hypothesis 5 predicted that there would be no significant variance due to sex on SMA, PER, CON, RV and PPVT scores. This hypothesis was confirmed (See Table VII, Appendix E).

Hypothesis 6

Hypothesis 6 predicted that subjects who score high on RV would obtain higher CON scores, and lower SMA and PER scores. This hypothesis was confirmed, since there is a significant positive correlation ($r=0.25$, $0.05 > p > 0.01$) between RV scores and CON scores, and a significant negative correlation between RV scores and SMA scores ($r=-0.37$, $p < 0.01$), and between RV scores and PER scores ($r=-0.29$, $p < 0.01$).

Content Validity of MLS

Table VIII (Appendix F) shows the percentage agreement between judges on the classification of MLS items. There was least agreement over SMA items. Only for one SMA item was there total agreement between judges that it belonged to that level. For PER and CON items, on the other hand, there was quite a high percentage of agreement among judges on the item classification, and on five PER items and five CON items there was total agreement that these items belonged to their respective levels.

Summary of Results

(1) CON scores on the MLS increased with age, while PER and SMA scores decreased with age.

(2) The differences between social class groups on MLS scores were significant only at grade three for SMA scores (LSES subjects obtained higher scores), and at grade six for PER scores (LSES subjects obtained higher scores). The differences were in the direction of higher SMA and PER scores for LSES subjects, and higher CON scores for HSES subjects, except at the grade nine level.

(3) RV scores increase with age, and are significantly higher for HSES subjects at grade three. LSES grade six subjects obtained lower RV scores (though the differences were not significant), but the scores for HSES and LSES grade nine subjects were almost the same.

(4) There were no differences in PPVT scores between the two SES groups.

(5) There were no significant differences between PER, SMA, CON, RV and PPVT scores due to sex.

(6) There is a positive relationship between CON scores and RV scores, and a negative relationship between SMA and RV scores and between PER and RV scores.

(7) There was considerable disagreement among judges over the placement over SMA items in the MLS, but quite good agreement over the placement of PER and CON items.

Discussion of Results

The findings of this study appear to support the theoretical viewpoint that there is a developmental trend from sensori-motor-affective mediation of meaning, to perceptual mediation. However when the three grade levels were broken down by level of SES there was not clear support for the expectation that subjects from deprived backgrounds would tend to show a slower developmental trend away from the sensori-motor-affective and perceptual levels towards the conceptual levels of mediation. In none of the three MLS scores was there any significance in differences due to social class in the analysis of main effects. However, SMA scores were significantly higher for LSES grade three subjects, and PER scores were significantly higher for LSES grade six subjects. Except for the grade nine subjects, the

LSES subjects did tend to score higher on SMA and PER items, and lower on CON items.

It could be argued that the effect of social class on the development of connotative meaning is most marked for younger children, but that by the time the child reaches grade nine, the effect of eight years of common schooling has cancelled out the differential effect of home environment on meaning. At the same time, lack of refinement in the MLS itself, which will be discussed further, may be responsible for the masking of differences in level of connotative meaning, between classes and for the conflicting findings in this study.

The lack of significant differences between PPVT scores in the two social class groups seems to support the view that simple labelling or recognition vocabulary is not a particularly important factor in the language deprivation of the culturally disadvantaged. On the other hand, recall vocabulary scores seem to tell more about conceptual and categorical understanding of words, which could be expected to show differences between social class groups.

RV scores increased with age, in accordance with previous studies. That is, subjects made fewer errors in defining words as they got older, and tended to use more sophisticated definitions of the synonym type in the higher grades. However, this study does not show higher RV scores

for all HSES subjects as did Labercame's study. The differences in RV favoured the HSES subjects most strongly at grade three, when they were significant; but the differences at grade six, though in the direction of scores being higher for the HSES subjects, were not significant. At grade nine there was no difference in the scores of HSES and LSES subjects. These findings are not at all congruent with those of Labercane, who found a cumulative deficit in the RV score of LSES subjects, with increase in age. However, it must be remembered that this study did not use a standardized vocabulary test with words of increasing difficulty, while Labercane used the Stanford-Binet vocabulary scale. In fact, the twelve words chosen for the MLS were selected so that they would be familiar to children from grade two. It seems likely, therefore, that the ceiling for attaining the best definition of these words, would be somewhat lower than when Stanford-Binet words were used. In other words, even LSES children have attained a sophisticated understanding of the type of words used in the MLS somewhere between grade three and grade nine. Hence the limited sample of words used to measure RV in this study, has not included enough difficult words to be representative of the large number of words necessary for a good working vocabulary.

Using judges to rate MLS items provided some useful

insights into the nature of the items. There was more disagreement over so-called SMA items (73.1 per cent), than over perceptual items (95.6 per cent) and conceptual items (93 per cent) (See Table V). Several questions are raised by these findings. One difficulty was that the judges reported a conflict in judging the phrases. They found a conflict over whether they should judge the items according to their connotative or denotative meaning. For example, the item "a sharp knife" was difficult. If judged by its denotative meaning, it appears to have strong perceptual attributes, but it seems likely that the phrase would have strong affective attributes for some individuals. Even if a deliberate effort is made to eliminate connotative judgement, many of the items cannot unequivocally be judged as falling into one category rather than another. For example, the item "An extra bother" clearly involves conceptualization, but has strong elements of affective meaning attached. The assumption used in constructing the test seems to have been that the subjects would focus on the denotative aspects of the MLS phrases, whereas they would concentrate on the connotative meaning of the stimulus words. However, there is a strong possibility that since subjects were asked to choose items which were congruent with their connotative understanding of the words, they would have had a tendency to look at the MLS phrases in

terms of their connotative meaning. Hence whether the items which were chosen fall into Brandwin's three categories may be meaningless, because for the individual they may fall into quite another category. For example, if we find a subject choosing three items classified as perceptual for one word, we cannot necessarily conclude that his meaning of that word is at the perceptual level, since as far as he is concerned they may have sensori-motor-affective associations.

Even in a group of adults with some understanding of developmental psychology, there is some disagreement over the classification of the items, hence one would expect that among children there would be even more disagreement. Yet one may not conclude that the adults are correct and the children wrong, since the scale sets out to measure connotative meaning, which is considered to be relatively idiosyncratic and non-criterial. It is interesting that there is the greatest degree of disagreement over SMA items, since this suggests that an adult is quite unable to comprehend the nature of SMA meaning, since he has long passed out of this level of functioning himself. It seems obvious that Brandwin had some difficulty constructing these items. The face validity of the test is considerably damaged by the author's use of the present participle of the verb, to add an element of sensori-motor activity to

the phrases ("Floating on water", "Having a toothache"). An unwarranted assumption appears to have been made, that by using the active form of the verb, the item will seem active to the subject. It would seem rather that sensori-motor-affective meaning refers more to the very close associations that a particular word may have with the sensori-motor activity that has accompanied the word or its referent in the past, than to the syntactical form of the word.

A further problem with this scale is the forced choice nature of the task. It could be that the child's meaning of a word may be being stretched and distorted, if he is asked to choose from a preconceived set of phrases. Moreover, the nature of the classification of the items is such that if the individual chooses a large number of SMA and/or PER items, he must of necessity, get lower scores on CON items and vice versa. Hence there could be some spurious data concerning the development of meaning from one level to another. That is, if there is a decreasing number of SMA and PER choices, there must be an increase in CON choices.

Despite the criticisms made of the MLS, the scale has many merits and it could become a useful instrument for research if some improvements were made. It seems likely that at least at the perceptual and conceptual levels the items chosen will tend to have the effect of eliciting

connotations of a less abstract nature for the perceptual items, and of a more abstract nature for the conceptual items. The correlation data support this assertion indirectly. Subjects who chose more conceptual items tended to be those who obtained higher scores on recognition vocabulary. The latter is thought to measure the more abstract and categorical use of language, and hence one might expect individuals with a more complex understanding of the denotative aspects of language to operate on a more conceptual level of connotative meaning. It is not necessary that there be an overlap between the constructs of expressive denotative meaning and connotative meaning, though this is a possibility. It could be that the two types of meaning show a similar developmental progression. At any rate, the significant correlations obtained, seem to indicate that Brandwin's MLS has potential for measuring progression of meaning towards a more conceptual level. However, it appears that the instrument needs some more modification before it is adequate for understanding the sensori-motor-affective level of meaning.

CHAPTER V

SUMMARY, CONCLUSIONS AND IMPLICATIONS

Summary

The purpose of this study was to examine developmental trends in meaning among middle and lower-class children. Werner's theory indicated that the word meanings of children are not static. Younger children's word meanings, according to Werner, are closely bound to subjective activity and affective orientations in the child, and they develop towards a level where the perceptual, concrete attributes of words and their referents are paramount. From the perceptual level, meanings develop away from the immediate sensory experience, to a conceptual phase, where they become logically coherent, relatively conventionalized, more distant from their referents and more abstract. Brandwin's work gave some empirical support to Werner's hypotheses. He found that sensori-motor-affective and perceptual mediation of meaning became less prominent with increase in age, while conceptual mediation progressively emerged.

Feifel and Lorge found that denotative meaning developed in a similar fashion to the connotative meanings studied by Brandwin. They examined the nature of children's word definitions and found that younger children tended to define objects and their referents in terms of their uses

and their perceptual attributes, while older children used more generalization and categorization in their definitions.

A review of the literature on middle and lower-class language usage suggested that there would be some differences in the type of meaning which was prevalent for lower-class children and middle-class children. In general, it appears that children from deprived language backgrounds do not have the type of experience which would encourage the growth of conceptual language and thought. Lower-class mothers use a restricted language code which concentrates on appealing to external rules, whereas middle-class mothers encourage consideration of alternatives and reflection. It appears that lower-class children tend to become more controlled by their physical environment, and use language primarily to refer to that environment and their actions upon it. Middle-class children, on the other hand, could be expected to rely on language more for reflection and consideration of the possible and the hypothetical. There is some evidence to support the view that lower-class children tend to be less proficient in abstract, conceptual use of language, and that concrete language is more prominent for them than for middle-class children. It seemed from the literature, that the lower-class child would not necessarily be less able to recognize the correct labels for referents, but that differences would be more apparent in the associations of these referents.

For this study, it was decided to choose ninety-six grade three, grade six and grade nine children of high and low SES to allow for a comparison of meaning between developmental levels and between social classes. Brandwin's Mediation Level Scale was the instrument chosen for the examination of connotative meaning. The scale allows categorization of childrens' connotative meaning responses to words into either sensori-motor-affective, perceptual or conceptual levels of mediation. Subjects' definitions of MLS stimulus words were rated according to the classification of Feifel and Lorge giving a Recall Vocabulary score which indicates quality of denotative definition. The Peabody Picture Vocabulary Test was given to compare the labelling ability of children of different SES. In short, three measures of meaning were used in this study: the MLS for connotative meaning; RV score for expressive denotative meaning; and PPVT score for labelling denotative meaning.

Comparing the scores of grade three, six and nine children revealed a definite trend for sensori-motor-affective and perceptual mediation of meaning to decrease with age, and for conceptual meaning to increase with age. Moreover expressive denotative meaning progressed away from 'use and description' types of definition towards 'synonym' types of definition. In other words, both denotative and connotative meaning progress from a prominence of sensory

and concrete attributes towards a greater degree of conceptualization and abstraction.

Comparing the scores of high and low SES children on the MLS and RV scores did not confirm completely the prediction that middle-class children would use more SMA and PER mediation, and that they would define words on a more concrete basis. The study did, however, indicate a lack of any effect of social class on labelling ability. There was a tendency in lower-class subjects at the grade three and grade six levels to show more SMA and PER mediation of meaning, but their scores on these measures were not always significantly lower, even at the lower age levels. At grade nine, on the other hand, there did not appear to be any difference in the MLS scores or the RV scores of middle and lower-class children.

An attempt at providing a degree of content validation for the MLS, showed some disagreement among judges over the classification of MLS items, especially those designed to be representative of the SMA level.

Conclusions

This study appears to add support to the developmental viewpoint that meaning proceeds from being bound to action and subjective states in the individual, to becoming closely tied to objects and events in the physical world, and finally towards a state where it becomes conceptualized and

relatively distant from the physical world. The findings of this study are quite congruent with those of Brandwin on this issue.

The effect of social class on meaning appeared to be most powerful at grade three, and gradually diminished until at grade nine no differences between the two groups were apparent. It is thought that this finding is due in part to the very limited sample of total vocabulary used to study the connotative and denotative meaning of words. The stimulus words were chosen so that they would be familiar to grade two children, while Labercane's study, which showed an increasing divergence between the word meanings of two social class groups, used a much wider range of words in terms of their difficulty. It appears that, at least for relatively familiar words, the lower-class child begins with a disadvantage, but that he is able to reach the same level of conceptualization as the middle-class child between grade three and grade nine.

In the less complex task of being able to recognize the correct label for a referent, it appears that the LSES child is equally as proficient as the middle-class child in grade three, six and nine.

Certain problems with Brandwin's MLS may have been responsible for some of the confusion in the findings of the study. While the scale appears to be significantly

correlated with RV score, it seems to need further elaboration and modification before it can become an efficient and precise instrument. Some of the difficulties with the scale at present appear to be the lack of agreement in the placement of items according to their mediational level, and the possibility that the items may have a private connotative meaning for different individuals. It appears to be particularly difficult for an adult to comprehend the nature of SMA meaning, which may account for the weakness of these items in the scale. Two other problems with the scale are that the task of choosing MLS items is of a forced choice nature which may distort the individual's connotative word meanings to some extent, and the arithmetical necessity inherent in the scoring that conceptual choices increase, if SMA and PER choices decrease.

Implications

The finding that symbolic language develops in the direction of becoming more and more distant from the physical environment and from the idiosyncracies of the individual is congruent with the idea that language progressively releases us from immediacy (Bruner, 1964). Whereas symbols seem to have evolved to enable us to order our experiences and the objects around us, they come to have a life of their own, which is relatively independent of sense data.

In some respects, the objectification of language has

its disadvantages. Our subjective awareness of our surroundings, our openness to new interpretations and combinations of perceptual and sensory phenomena, appear to lose some of their richness as conceptual mediation of meaning becomes more prominent. The young child who has a naive and novel view of the world may have greater potentiality for seeing it in new ways. As the child absorbs the orientation of his culture through its language, his view of the world converges with those around him so that it becomes increasingly difficult for him to have a uniquely individual interpretation and expression of his experience. One of the pitfalls of a symbol system, according to Bruner (1962), is that we lose our pre-conceptual innocence and allow ourselves to be limited by a system of symbols as if it had power outside ourselves. In the same vein Schachtel describes the tyranny of abstraction:

... most of the time when we listen to the spoken or written word, we neither perceive nor imagine the referent of the word but are in contact only with the words (or concepts). We behave as if the word were really all there is to the object which it designates (1959, p. 189).

While one may regret the fading away of child-like perceptions of the world, it is important to recognize the instrumentality of an abstract, conceptualized language in the ordering and regulation of multiple perceptual and sensory data. "It mediates among the confusing multiplicity

of sensuous impressions by means of judgements and interpretations, and imposes order and measure upon the manifold" (Werner, 1948, p. 52). The ability to conceptualize with the aid of language allows us to disregard irrelevancies in incoming information, to transcend the immediate physical environment, to consider the hypothetical, and to replace trial and error with reasoning. Our ability to see a future goal in its symbolic image, according to Von Bertalanffy (1966), makes true purposiveness possible. It may well be that when we use symbols that are autonomous, abstract and conceptual, we are reaching towards that high point of language, described by Sapir (1921) where it merges with thought.

Since this study supports the view that the nature of word meanings change during the developmental process, this should be taken into account when considering the social functions of language. That is, although two people may both be familiar with the words they are using to communicate, their individual meanings may be at a different level. In the classroom environment, it is important for the teacher to realize that just because a child knows a word, he may be thinking about it in quite a different way from the teacher when he or she uses the word. The language of younger children appears to operate within a subjective action framework. Moreover, it appears likely that the

lower-class child, on entering school has more difficulty in understanding abstract, conceptualized language. An awareness of the gap between adult understanding of language and that of children, should lead teachers to rely to a lesser extent on long verbal explanations to communicate concepts to younger children. It seems that relying more on the active involvement of the child and the use of concrete illustrations from the perceptual environment would be more effective for the communication of concepts.

It is, however, necessary for the child to develop away from the demands of the immediate physical environment, so that higher forms of symbolization may emerge. To this end, it appears that teacher control should be based less on appeals to outside rules, and more on rational explanation. By allowing questioning and discussion, children may be encouraged to become less subjective, more open to the consideration of alternatives, and more able to operate within a framework of hypothetical events and logical possibilities. Although there is a lack of conclusive evidence in this study concerning the effects of environment on the development of meaning, there is a very strong likelihood that the strategies just described will help the child make a transition from his own idiosyncratic concrete language towards a more conceptual type of language which may open up new possibilities for

thought. At any rate, it is an area where further research could profitably be directed.

One of the practical implications of this study seems to be that the problem of measuring connotative meaning is by no means solved. While Brandwin's approach to measuring connotative meaning has overcome some of the difficulties inherent in an instrument such as the Semantic Differential, which takes no account of parallel but different mediational structures, a number of other difficulties remain.

For example, the items in the MLS are divided into three categories -- sensori-motor-affective, perceptual and conceptual. However, the classification of such responses rests on an adult judgement of a denotative nature. Although the study showed that there was quite good agreement on the placement of PER and CON items, considerable disagreement was apparent over the placement of the SMA items. It appears that the items may have a different connotative meaning for different individuals making the choices. It is not easy to suggest a way for overcoming this problem. It is inherent in the use of items which involve language that has both a private and a public meaning, that the uncertainty over the individual meanings of the items arises. One possible solution to the problem would be to use items of a visual nature, such as the simple line drawings used by Osgood (1960) to study connotative meaning in different cultures. Osgood used a choice of only two

items for each word, but it would be possible to use a greater number of alternatives. In order to find developmental trends in connotative meaning, a factor analytical study of the responses typical of different age levels could be carried out. Another approach to the problem would be to use some objective physiological correlate of meaning responses to words, such as muscular tension or galvanic skin response. A study of the muscular tension which accompanies the response to a particular word would help to confirm or deny the notion that certain words are accompanied by action-tendencies in younger children. A study of galvanic skin responses would be a useful measure of the affective correlates of meaning, although there could be difficulty in understanding what G.S.R. is indicative of, since it is a component of arousal which seems to include a cognitive component.

There are some improvements that could be made to the test in its present form which would be useful. Moreover other data should be collected to provide further information on the MLS. The following are some suggestions on further work which should be done on the MLS.

(1) The test should be scored by counting only one type of response for a given set of items. In other words, if three lists are presented with the stimulus words, one would obtain MLS scores by counting only SMA responses to

list A, only PER responses to list B and only CON responses to list C. This would avoid the difficulty of spurious results inherent in the necessity for SMA and PER choices to increase if CON choices decrease.

(2) The SMA items on the scale should be modified, and a deliberate attempt made to avoid using syntax to provide a component of activity to the items. Some examination of the sensori-motor-affective language which accompanies the actions of the young child, should provide better clues to the actual nature of sensori-motor-affective meaning.

(3) Studies on test-retest reliability are needed to show that MLS scores are indicative of lasting tendencies in the child to choose items of a particular level of mediation. It has not been demonstrated that MLS scores represent more than fleeting response sets.

(4) Further information on the concurrent and construct validity of the scale is necessary. For example, it would be possible to compare MLS scores with responses on word association tests (with responses classified in terms of level of meaning), thus providing some measure of concurrent validity.

(5) Longitudinal studies on the changes in the dominant type of mediation for the same individuals need to be carried out.

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A P P E N D I X A

INSTRUCTIONS TO JUDGES FOR RATING
MLS ITEMS

APPENDIX A

PROCEDURE FOR JUDGING MLS ITEMS

Instructions to Judges:

I am engaged in a study of the development of connotative meaning. For this study, one of the major instruments has been Dr. Marvin Brandwin's Mediation Level Scale. The scale consists of a number of phrases representative, according to Brandwin, of three genetic levels.

- (a) Level I: Sensori-Motor-Affective.
- (b) Level II: Perceptual.
- (c) Level III: Conceptual.

These levels represent the three developmental stages postulated by Heinz Werner. During the administration of the MLS, the subject is asked to match a number of single words (one at a time) against a list of these phrases. He chooses three phrases which he associates with each word.

After testing 96 children, it seems to me that it would be worth investigating the amount of agreement that exists over the classification of the MLS items. To this end, I would be grateful if you would follow the instructions given below on how to perform these judgements.

I would like you to classify each of the 36 phrases listed on the next page, according to whether you feel they fall into category I, II, or III. Beside the phrases there is a column where you should record your choice. Please read carefully the descriptions of each level, given below, before you make your judgements.

The selection of particular MLS phrases derives from certain basic attributes of the genetic level which they are intended to represent. Sensori-motor-affective behaviour emerges from what Werner refers to as a world made up of 'things-of-action': a global and fluid responsiveness marked by fusion of sensory and affective experience, diffuseness of self-object boundaries, and a highly subjective, egocentric orientation. Level I items therefore are intended to bear reference to sensory responsiveness within a functional context, with emphasis placed on diffuse subjective experience rather than objective stimulus properties.

Perceptual level behaviour is based upon a mode of experience involving discrete sensory awareness of specific concrete objects. The differentiated stimulus properties of the perceived object serve as the salient determinants in the organization of experience. Affective elaboration may occur, but not to the extent of fusion between subjective and objective elements. Level II items are therefore intended to represent what Werner calls 'picture-things'. They refer to concrete objects having discrete perceptible stimulus properties.

From the standpoint of genetic sequence, conceptual level behaviour expresses the most advanced form of mental function. The essential attribute of this mode of cognition is the capacity to transcend immediate sensory experience in favor of a logically derived synthesis of stimulus components into a new and potentially generalizable configuration. Level III items therefore are intended to refer to abstract relational representations not explicitly tied to a specific sensory context. (Taken from Dr. Brandwin's thesis, p. 33).

A P P E N D I X B

RECORD FORM FOR MLS RESPONSES

APPENDIX B

RECORD FORM

Name: _____ Grade: _____ School: _____

	1st	2nd	3rd
MONEY	_____	_____	_____
DEATH	_____	_____	_____
TRUTH	_____	_____	_____
THIEF	_____	_____	_____
HOME	_____	_____	_____
SIN	_____	_____	_____
GOD	_____	_____	_____
SPIDER	_____	_____	_____
ME	_____	_____	_____
SHAME	_____	_____	_____
PEACE	_____	_____	_____
DIRT	_____	_____	_____

LIST A

- 1. A useful idea
- 10. An extra bother
- 9. Floating on water
- 3. Eating chocolate cake
- 5. A pink ribbon
- 6. Starting to cry
- 7. A secret hope
- 8. A broken window
- 4. A forgotten promise
- 2. A long snake
- 11. A new automobile
- 12. Touching a hot stove

2.

	1st	2nd	3rd
MONEY	_____	_____	_____
DEATH	_____	_____	_____
TRUTH	_____	_____	_____
THIEF	_____	_____	_____
HOME	_____	_____	_____
SIN	_____	_____	_____
GOD	_____	_____	_____
SPIDER	_____	_____	_____
ME	_____	_____	_____
SHAME	_____	_____	_____
PEACE	_____	_____	_____
DIRT	_____	_____	_____

LIST B

8. An itchy feeling
5. Kissing someone nice
4. A sharp knife
6. A lost chance
11. Playing with finger paint
1. A diamond ring
7. A picture book
9. A possible reason
2. Hearing a scary scream
10. A dark cave
3. A deeper need
12. A usual problem

3.

	1st	2nd	3rd
MONEY	_____	_____	_____
DEATH	_____	_____	_____
TRUTH	_____	_____	_____
THIEF	_____	_____	_____
HOME	_____	_____	_____
SIN	_____	_____	_____
GOD	_____	_____	_____
SPIDER	_____	_____	_____
ME	_____	_____	_____
SHAME	_____	_____	_____
PEACE	_____	_____	_____
DIRT	_____	_____	_____

LIST C

1. Smelling perfume
10. Having a toothache
9. A baby rabbit
3. An old castle
5. A special wish
6. An iron gate
7. Laughing at a joke
8. A hidden thought
4. Falling down a hole
2. A further worry
11. An important answer
12. A loaded gun

A P P E N D I X C

TEST INSTRUCTIONS TO GRADE 3, 6, AND
9 FOR MLS

APPENDIX C

TEST INSTRUCTIONS (GRADE 3)

"This is a kind of word game. I want to know how you think about some words. There are no right or wrong answers. The best answer is what you think.

I want to know what you think about when you see the words I show you, at least I want to know which of the things on these cards you think of." (Point to the board). "Shall we read through what is on the cards? Now you start with this one." (Point to each of the phrases in turn on List A).

"Now we are going to look at one word at a time and I want you to pick three cards from the board which go best with the word." (If child says none go with the word ... "Even if some of these cards do not go with the word very well, pick out the ones you think are most like the word.")

"Right, shall we do some for practice? At first, I will read each one of these to you and ask you if it makes you think what the word means. Later you should be able to read them to yourself and tell me."

(1) Hand child card with the practice word MOUNTAIN printed on it.

(2) Point to List A. "Remember you have to choose three cards which go with the word. When you think of MOUNTAIN does it make you think of _____? Is it like _____?" (Read each item in turn from List A).

(3) Carry on procedure until child is familiar with the lists and the stimulus words. "Now that you know the lists, you can look through the whole list when I show you a word, and pick out the three cards which are most like what the word means to you. The next word is HOME. Pick out the three which go with HOME for you." (When all twelve words have been judged on the first list, present them with the second list and then with the third one).

TEST INSTRUCTIONS (GRADE 6 AND 9)

The experimenter first drew on the blackboard a replica of the record form with three practice words.

"This is a kind of word game. I am interested in how boys and girls of your age think about the meanings of some words. Your answers will not be marked and there are no right or wrong answers. The best answer is what each one of you thinks so please don't look at each others choices.

I want to know what other words or things you are reminded of when you think about the meanings of the words I show you on these cards -- at least I want to know which items from the board go with the word for you.

First, let us read through the items on the list before we do some for practice." (Let each child in the group have a turn at reading through one of the lists.) "Right, now we are going to look at one word SCHOOL, and we'll take turns picking out the items which go with the word for us. _____, will you tell us which three items go with school for you?" (Write the numbers of the responses on the blackboard diagram. Do several practice words with the group in this way).

After practice session, hand out record forms. "Is everyone clear what to do now? Remember you are to pick out three items which go with each word, and record their numbers on your record form in the spaces beside the word. Even if some of the items on the cards do not go with the word very well, pick out the ones that are most like the word for you. Judge the words in the order that they are written on the blackboard, and start with List C, then do List A and finally List B." (The order was different for every group).

A P P E N D I X D

EXAMPLES OF RECALL VOCABULARY RESPONSES

APPENDIX D

EXAMPLES OF RECALL VOCABULARY RESPONSES

A. Synonym Category:

- | | |
|--|---|
| (a) Synonym unmodified: | Thief - robber |
| (b) Synonym modified by use: | Money - currency used to pay for things |
| (c) Synonym modified by description: | Spider - a member of the arachnid family usually having 6 legs and 2 body parts |
| (d) Synonym modified by use and description: | Spider - eight-legged insect which spins webs to trap food |

B. Use, Description, and Use and Description Category:

- | | |
|--------------------------|---|
| (a) Use: | Money - something to buy things with |
| (b) Description: | Dirt - a black or brown substance on the ground |
| (c) Use and Description: | Money - money is a useful thing made out of paper, copper, or nickel, and used to buy things. |

C. Explanation Category:

- | | |
|------------------|--|
| (a) Explanation: | Peace - when war and fighting have ended |
| | Truth - when you tell something that isn't a lie |

D. Demonstration, Repetition, Illustration and Inferior Explanation Category:

- | | |
|--------------------|---|
| (a) Demonstration: | |
| (b) Repetition: | Shame - shame on yourself hitting someone |

(c) Illustration: Sin - you have said a bad
word

(d) Inferior explanation: Dirt - an untidy room

E. Error Category:

(a) Incorrect demonstration:

(b) Misinterpretation: Thief - killer

(c) Clang association:

(d) Wrong definition: Peace - a part of something

(e) Repetition without
explanation: Spider - a spider on the floor

A P P E N D I X E

ANOVA DATA: TABLES V, VI, AND VII

APPENDIX E

TABLE V

SUMMARY OF ANALYSIS OF VARIANCE FOR AGE AND GRADE

Source of Variance	SS	df	MS	F	P
Sensori-Motor-Affective Scores on MLS:					
A (Grade Level)	465.65	2	232.82	7.52	<.01
B (SES)	12.04	1	12.04	0.389	-
AB (Interaction)	184.77	2	92.38	2.99	.05>p>.01
Error	2783.50	90	30.92		
Total	3445.96	95			
Perceptual Scores on MLS:					
A	341.08	2	170.54	4.44	<.01
B	27.09	1	27.09	0.705	-
AB	299.25	2	149.63	3.89	.05>p>.01
Error	3461.06	90	38.46		
Total	4128.49	95			
Conceptual Scores on MLS:					
A	1019.52	2	509.76	6.57	<.01
B	24.00	1	24.00	0.31	-
AB	479.31	2	239.65	3.09	.05>p>.01
Error	6982.13	90	77.58		
Total	8504.96	95			

TABLE V (CONTINUED)

Source of Variance	SS	df	MS	F	P
Recall Vocabulary Scores:					
A	2267.52	2	1133.76	42.55	<.01
B	1917.10	1	1917.10	25.16	<.01
AB	2503.31	2	1251.66	27.78	<.01
Error	4054.81	90	45.05		
Total	1,0742.74	95			

Peabody Picture
Vocabulary Scores:

A	19666.94	2	9833.47	52.22	>.01
B	341.26	1	341.26	1.81	-
AB	892.65	2	446.32	2.37	-
Error	16947.56	90	188.31		
Total	37848.41	95			

NEWMAN-KEULS TESTS

	T ₃ (Grade 9)	T ₂ (Grade 6)	T ₃ (Grade 3)
--	--------------------------	--------------------------	--------------------------

Sensori-Motor-
Affective Scores:

Totals	909	1058	1059
--------	-----	------	------

Critical Differences:
(.01 level)

	T ₃	T ₂	T ₁
T ₃		117	133
T ₂			117

TABLE V (CONTINUED)

	T_3 (Grade 9)	T_2 (Grade 6)	T_1 (Grade 3)
Observed Differences:			
	T_3	T_2	T_1
T_3		149**	150**
T_2			1
	T_3 (Grade 9)	T_2 (Grade 6)	T_1 (Grade 3)
Perceptual Scores:			
Totals:	1103	1122	1239
Critical Differences: (.05 level)			
	T_3	T_2	T_1
T_3		98.58	118.6
T_2			98.58
Observed Differences:			
	T_3	T_2	T_1
T_3		19	136*
T_2			117*
	T_3 (Grade 3)	T_2 (Grade 6)	T_1 (Grade 9)
Conceptual Scores:			
Totals:	1187	1283	1440
Critical Differences: (.01 level)			
	T_3	T_2	T_1
T_3		185.3	210.7
T_2			185.3

TABLE V (CONTINUED)

	T_3 (Grade 3)	T_2 (Grade 6)	T_1 (Grade 9)
--	-----------------	-----------------	-----------------

Critical Differences:
(.05 level)

	T_3	T_2	T_1
T_3		140.00	
T_2			140.00

Observed Differences:

	T_3	T_2	T_1
T_3		96	253**
T_2			157*

** significant at the .01 level.

* significant at the .05 level.

TABLE VI
ANALYSIS OF SIMPLE EFFECTS

Source of Variance	SS	df	MS	F	P
Sensori-Motor-Affective Scores on MLS:					
B for a_1	148.78	1	148.78	4.81	.05 > p > .01
B for a_2	0.5	1	0.5	0.016	-
B for a_3	47.53	1	47.53	1.53	-
Error	2783.50	90	30.92		
Perceptual Scores on MLS:					
B for a_1	3.78	1	3.78	0.09	-
B for a_2	247.53	1	247.53	6.44	.05 > p > .01
B for a_3	75.03	1	75.03	1.95	-
Error	3461.06	90	38.46		
Conceptual Scores on MLS:					
B for a_1	87.78	1	87.78	1.13	-
B for a_2	195.03	1	195.03	2.51	-
B for a_3	220.50	1	220.50	2.84	-
Error	6982.13	90	77.58		
Recall Vocabulary Scores:					
B for a_1	378.13	1	378.13	8.39	< .01
B for a_2	140.28	1	140.28	3.11	-
B for a_3	2.00	1	2.00	0.04	-
Error	4054.81	90	45.05		

TABLE VII
SUMMARY OF ANALYSIS OF VARIANCE FOR SEX

Source of Variance	SS	df	MS	F	P
Sensori-Motor-Affective Scores on MLS:					
Sex	23.01	1	7.67	0.21	-
Error	3444.86	94	37.44	-	-
Total	3467.91	95			
Perceptual Scores on MLS:					
Sex	111.51	1	36.84	0.82	-
Error	4115.48	94	44.73		
Total	4226.00	95			
Conceptual Scores:					
Sex	88.17	1	29.34	0.321	-
Error	8416.79	94	91.49		
Total	8504.96	95			
Recall Vocabulary Scores:					
Sex	0.09	1	0.03	0.0003	-
Error	11460.06	94			
Total	11460.15	95			
Peabody Picture Vocabulary Scores:					
Sex	645.8	1	215.28	0.53	-
Error	37189.6	94	404.24		
Total	37835.4	95			

A P P E N D I X F

INTER-RATER AGREEMENT ON CLASSIFICATION
OF MLS ITEMS

APPENDIX F

TABLE VIII

INTER-RATER AGREEMENT ON CLASSIFICATION OF
MLS ITEMS

Items	Percentage of Agreement
Sensory-Motor-Affective Items (Level I):	
Eating chocolate cake	69.3
Starting to cry	77.0
Floating on water	53.9
Touching a hot stove	69.3
Hearing a scary scream	77.0
Kissing someone nice	100.0
An itchy feeling	53.9
Playing with finger paint	84.7
Smelling perfume	69.3
Falling down a hole	69.3
Laughing at a joke	69.3
Having a toothache	84.7
Mean	73.1
Perceptual Items (Level II):	
A long snake	92.4
A pink ribbon	100.0
A broken window	100.0
A new automobile	92.4
A diamond ring	100.0
A sharp knife	100.0
A picture book	92.4
A dark cave	92.4
An old castle	92.4

TABLE VIII (CONTINUED)

Items	Percentage of Agreement
Perceptual Items (Level II) Continued	
An iron gate	92.4
A baby rabbit	100.0
A loaded gun	92.4
Mean	95.6
Conceptual Items (Level III):	
A useful idea	100.0
A forgotten promise	100.0
A secret hope	100.0
An extra bother	77.0
A deeper need	84.7
A lost chance	100.0
A possible reason	100.0
A usual problem	92.4
A further worry	92.4
A special wish	84.7
A hidden thought	92.4
An important answer	92.4
Mean	93.0

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